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Summary Only

AGONISTIC BEHAVIOUR OF GRAZING HEIFERS DURING DAIRY HERD FORMATION

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Twenty-four heifers (mainly identical twin pairs of Jersey, Friesian, Jersey \times Friesian, Ayrshire cross and Murray Grey cross breeding) were observed from December 1975 until the last heifer calved in September 1976. During this period mature cows which had ceased to lactate were progressively added to the heifers. Six cows joined the heifers in December, 4 in February, 4 in March, 13 in April, 23 in May, and 46 in June. Observations were made on (1) the grazing dominance hierarchy (GDH), (2) the frequency of agonistic encounters involving heifers in the first hour of grazing (AEIH), and (3) liveweight.

Adding mature cows resulted in a series of grazing density changes. Usually grazing density changes were confounded with composition changes and seasonal changes but during April and May the grazing area was reduced while herd composition remained constant.

Some of the dominant/subordinate relationships were transient and the GDH showed some changes. During December, January and February the GDH was far from linear. There were 11 non-congruent (circular/triangular) relationships. For example, heifers 198 and 199 were dominant to 4 and 3 and subordinate to 23 and 24 but 23 and 24 were subordinate to 4 and 3. The overall tendency was that the hierarchy became more linear, reducing from 11 non-congruent relationships to 8 from May to July. Increased grazing density may thus have resulted in more rigid maintenance of the hierarchy.

As grazing density increased from 37 cows/ha (December) to 182 cows/ha (mid-May), AEIH increased. At densities above 182 cows/ha (May-July), AEIH became fewer as density increased (from 250 to 909 cows/ha). The latter was possibly an adaptation representing failure of dominants to respond or appeasement by subordinates.

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Body weight showed a similar relationship to grazing density and season as AEIH. Mean body weights rose until April-May and then fell as density increased. The dominants were heavier than the subordinates and retained the same weight differential throughout the observations.